

by weight of thermoplastic components,

and wherein a basis weight of said mat falls within the range of 68 to 339 gm/square meters, and wherein the reinforcement fibers are selected from the group consisting of carbon; glass; para-amid; ceramics; metals; high temperature thermoplastics; thermosets; liquid crystal polymer fibers; ultra high molecular weight polyethylene and natural or synthetic spider web.

37. (Currently Amended) A mat comprising

a plurality of discontinuous reinforcement fibers having at least a 90% machining direction orientation;

and

a thermoplastic component selected from the group consisting of polyethylene, polypropylene, polyethylene terephthalate (PET), polyamides, polyethylene naphthalate (PEN), polyetheretherketone (PEEK) and polyetherketoneketone (PEKK),  
wherein concentration of reinforcement fiber components to thermoplastic components is in a range of 60-70% by weight of reinforcement fibers to 40-30% by weight of thermoplastic components,

wherein a basis weight of said mat falls within the range of 68 to 339 gm/square meters, and wherein the reinforcement fibers are selected from the group consisting of carbon; glass; para-amid; ceramics; metals; high temperature thermoplastics; thermosets; liquid crystal polymer fibers; ultra high molecular weight polyethylene and natural or synthetic spider web.

38. (Previously Cancelled)

39. (Currently Cancelled, without prejudice or disclaimer).

40. (Currently Amended) A product comprising a plurality of mats, each

of said mats comprising

a plurality of discontinuous reinforcement fibers having at least a 90% wetlay orientation, and

a thermoplastic component selected from the group consisting of

6 polyethylene, polypropylene, polyethylene terephthalate (PET), polyamides,  
7 polyethylene naphthalate (PEN), polyetheretherketone (PEEK) and  
8 polyetherketoneketone (PEKK),  
9 wherein concentration of reinforcement fiber components to thermoplastic  
10 components is in a range of 60-70% by weight of reinforcement fibers to 40-30%  
11 by weight of thermoplastic components,  
12 and wherein a basis weight of each of said mats falls within the range of 68 to 339  
13 gm/square meters, and wherein the reinforcement fibers are selected from the  
14 group consisting of carbon; glass; para-amid; ceramics; metals; high- temperature  
15 thermoplastics; thermosets; liquid crystal polymer fibers; ultra high molecular  
16 weight polyethylene and natural or synthetic spider web.

1 41. (Original) The product of claim 40 wherein at least one of said mats  
2 has been heated in an oven, compression molded, hot stamped, continuously  
3 formed in a belt press, continuously shape-formed by hot roller pressing,  
4 continuously shaped by reciprocal stamping, formed through pultrusion, or  
5 continuously manufactured to form structural rods, ropes and cables.  
6

1 42. (Original) The product of claim 40, wherein each of said mats have  
2 different fiber components and fiber orientations.

43. (Currently Cancelled, Withdrawn per Examiner, as non-elected)

1 44. (Original) A mat according to claim 36, wherein the reinforcement  
2 fibers are polyacrylonitrile (PAN) carbon.

1 45. (Original) A mat according to claim 36, wherein the reinforcement  
2 fibers are pitch carbon.

1 46. (New) The mat of claim 36, wherein the reinforcement fibers have  
2 fiber lengths in a range of about 0.6 cm to 6.35 cm.

1                   47. (New) The mat of claim 46, wherein the reinforcement fibers have  
2 fiber lengths in a range of 1.9 cm to 3.2 cm.

1                   48. (New) The mat of claim 36, wherein the reinforcement fibers adhere  
2 to the thermoplastic component.

1                   49. (New) The mat of claim 36, wherein the reinforcement fibers are all  
2 made of one material and have at least substantially the same length and diameter.

1                   50. (New) The mat of claim 36, wherein the reinforcement fibers are made  
2 of a a mixture of materials, and have different lengths, diameters and  
3 compositions.

1                   51. (New) The mat of claim 36, wherein the thermoplastic component is  
2 selected from the group consisting of fibers, granular particles and flat platelets.

1                   52. (New) The mat of claim 36, wherein the thermoplastic component  
2 includes fibers with lengths in a range of 0.6 cm to 1.9 cm.

1                   53. (New) The mat of claim 36, wherein the thermoplastic component is  
2 drawn fibers or undrawn fibers.

1                   54. (New) The mat of claim 36, wherein the thermoplastic component is  
2 made of the same material and of substantially same size members.

1                   55. (New) The mat of claim 36, wherein the thermoplastic component is  
2 made of a mixture of materials, of different sizes and melting points.

1                   56. (New) The mat of claim 36, further comprising an additional material  
2 selected from the group consisting of fillers, antioxidants, coloring agents,  
3 electrically-conductive materials, electrically-insulating materials, thermally-  
4 conductive materials, thermally-insulating materials, adhesion aids, melt flow  
5 modifiers, cross-linking agents, chemically-reactive materials, biologically-